

begin

#154

GILKMAN, L.G. T.

L 6956-66 ENT(1)/FCC/EWA(h) JW

ACC NR: AP5026229

SOURCE CODE: UR/0048/65/029/010/1865/1869

AUTHOR: Glikman, L.G.; Kel'man, V.M.; Yakushev, Ye.M.

ORGAN: Institute of Nuclear Physics, Academy of Sciences, KazSSR (Institut yadernoy fiziki Akademii nauk KazSSR)

TITLE: On the electromagnetic mechanism of cosmic ray acceleration /Report, All-Union Conference on Cosmic Ray Physics held at Apatity, 24-31 August 1964/

SOURCE: AN SSSR. Izvestiya. Seriya fizicheskaya. v. 29, no. 10, 1965, 1865-1869

TOPIC TAGS: Primary cosmic ray, particle acceleration, alternating magnetic field, relativistic particle

ABSTRACT: The relativistic equations of motion of a charged particle moving in the plane of antisymmetry of a varying axially symmetric magnetic field are solved for the case when the azimuthal component of the vector potential in the plane of antisymmetry has the form  $f(r/(t - a))/r$ , where  $f$  is an arbitrary function,  $r$  is the distance from the axis,  $t$  is the time, and  $a$  is a constant. Numerical solutions were computed for a field which alternately increases and decreases between finite limits and remains constant for a time at each limit. For the computations it was assumed that the field strength oscillates between  $1.0 \times 10^{-5}$  and  $1.2 \times 10^{-5}$  Oe with a period of  $3.5 \times 10^5$  sec. Some of these solutions are presented graphically and are discussed. The computations show that the ratio of particle energy to field strength is not constant and

Card 1/2

L 6956-66

ACC NR: AP5026229

that particles can be accelerated to high energies by variable magnetic fields which do not increase indefinitely in strength. Orig. art. has: 19 formulas and 4 figures.

SUB CODE: AA

SUBM DATE: 00/--Oct65

ORIG. REF: 006

OTH REF: 000

Card 2/2

L 2194-66 EWT(1) IJP(c)

ACCESSION NR: AP5C19234

UR/0056/65/049/001/0210/0213

AUTHOR: Glikman, L. G.; Kel'man, V. M.; Yakushev, Ye. M.

TITLE: Exact integration of the equations of motion of relativistic charged particles for a certain class of variable electromagnetic fields

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 49, no. 1, 1965, 210-213

TOPIC TAGS: motion equation, nonlinear differential equation, partial differential equation, first order differential equation, charged particle, relativistic particle

ABSTRACT: The authors obtain an exact solution for the equations of motion of relativistic charged particles in a variable electromagnetic field having rotational symmetry, in which there is a median plane that is perpendicular to the symmetry axis and is a plane of antisymmetry for the magnetic field and a plane of symmetry for the electric field. The motion of the particles in this plane is treated. It is assumed in addition that the charges produce no electric field and that the electrostatic potential is zero. The magnetic component of the field has only an azimuthal component in the median plane. The equations of motion are derived from the relativistic Hamiltonian-Jacobi equation and reduced to a first-order partial

Card 1/2

L 2191-66  
ACCESSION NR: AP5019234

3  
differential equation, which is integrated by the Lagrange-Charpit method. Orig.  
art. has: 15 formulas.

ASSOCIATION: Institut yadernoy fiziki Akademii nauk Kazakhskoy SSR (Institute of  
Nuclear Physics, Academy of Sciences, Kazakh SSR) 1955

SUBMITTED: 11Jan65

ENCL: 00

SUB CODE: GP, MA

NO REF SOV: 003

OTHER: 000

Card 2/2

EP

10664-66 EWT(d)/EWT(1) LJP(c) GG  
 ACC NR: AP5028313 SOURCE CODE: UR/0057/65/035/011/1997/2003  
 AUTHOR: Glikman, L.G.; Kel'man, V.M.; Yakushev, Ye.M.  
 ORG: none  
 TITLE: Solution of the nonrelativistic equations of motion for a charged particle in a certain class of varying electromagnetic fields  
 SOURCE: Zhurnal tekhnicheskoy fiziki, v.35, no. 11, 1965, 1997-2003  
 TOPIC TAGS: charged particle, motion equation, electromagnetic field, mathematic method  
 ABSTRACT: The solution of the nonrelativistic equations of motion for a certain class of motions of a charged particle in a certain class of varying electromagnetic fields is reduced to quadratures and eliminations. The electromagnetic fields considered are those that are axially symmetric, have a median plane which is a plane of symmetry for the electric field and a plane of antisymmetry for the magnetic field, and for which the radial and axial components of the vector potential vanish in the median plane (in the gauge in which the scalar potential vanishes) and the azimuthal component of the vector potential in the median plane has the form  $F(r)/(at^2 + bt + d)/r$ , where  $r$  is the distance from the axis,  $t$  is the time,  $a$ ,  $b$ , and  $d$  are constants, and  $F$  represents an arbitrary function. The motions considered are those in which the particle remains in the median plane. The particular form of the vector  
 UDC: 537.533.3  
 Card 1/2

L 10664-66

ACC NR: AP5028313

potential was investigated because it leads simply to an integral of motion. The treatment is different depending on whether the polynomial  $at^2 + bt + d$  does or does not vanish during the motion, and special discussion is required for the case in which the particle passes through the point  $r = 0$ . No applications are suggested for the results obtained. Orig. art. has: 38 formulas.

SUB CODE: 20

SUBM DATE: 12Apr65/

ORIG. REF: 003

OTH REF: 001

Card

2/2 *pu*



GLIKMAN, L. Sh.

Effect of structure on the strength of twisted cotton yarn. Izv.vys.  
ucheb. zav.; tekhn.tekst.prom. no.3:9-13 '60. (MIRA 13:7)

1. Yaroslavskiy tekhnologicheskii institut.  
(Cotton yarn)

GLIKMAN, L.S.; BOCHAROV, I.V.; VIKHMAN, G.L.; ABROSIMOV, B.Z.; KIRILOV,  
Ye. A.; MEL'NIKOV, S. M.; AGAFOROV, A.V.; SOSKIN, D.V.

Rebuilding catalytic cracking units with a combined reactor-regenerator  
Khim. i tekhn. topl. i masel 6 no. 11:6-10 N '61. (MIRA 14:12)

1. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut  
neftyanogo mashinostroyeniya.  
(Cracking process)

1. The first of the two main parts of the report is a description of the

work.

The second part of the report is a description of the results of the work.

GLIKMAN, L.S.; ROSHCHUPKIN, V.I.; PAVLOVSKAYA, Ye.I.

Powdered metal filters for retaining sand in oil recovery.  
Neft.khoz. 37 no.12:30-36 D '59. (MIRA 13:5)  
(Filters and filtration) (Sand)

GLIKMAN, L.S.

A visit of several days at petroleum industrial enterprises of  
Western Germany. Neft.khoz.3/4 no.4:74-79 Ap '56. (MLRA 9:7)  
(Germany. Western-Petroleum industry)

GLIKMAN, L.S.; BERZHEITS, G.H.

Basic trends in the creation of new oil and gas drilling units.  
Naft.khoz. 87 no.2:22-31 F '59. (MIRA 12:4)  
(Boring machinery)

GLIKMAN, L.S.; BERZHETS, G.N.

Basic trends in the creation of new oil and gas drilling units  
(conclusion). Neft.khoz. 37 no.3:15-25 Mr '59.

(MIRA 12:5)

(Boring machinery)

SHATSOV, Makhaman Isaakovich; prof.; FEDOROV, Vasilii Sergeyevich;  
KULIYEV, Saftar Makhtiyevich; IGANYESYAN, Hovh. Arsen'yevich;  
SHISHCHENKO, Roman Ivanovich; GLIKMAN, Leonid Solomonovich;  
BALETSKIY, Pavel Vladimirovich; TIMOFEEV, N.S., inzh.,  
retsenzent; ISAYEVA, V.V., vedushchiy red.; MUKHINA, E.A.,  
tekhn.red.

[Drilling oil and gas wells] Burenie neftyanykh i gazovykh  
skvazhin. Pod obshchei red. N.I. Shatsova. Moskva, Gosnauchno-  
tekhn.izd-vo nef. i gorno-toplivnoi lit-ry, 1961. 666 p.  
(MIRA 14:4)

(Oil well drilling)



GLIKMAN, L.Sh.

Distribution of stresses among the constituent elements of a  
twisted yarn under load. Izv.vys.ucheb.zav.; tekhn.tekst.prom.  
no.3:13-22 '61. (MIRA 14:7)

1. Yaroslavskiy tekhnologicheskii institut.  
(Yarn) (Spinning)

SHIMIZU, I. Sh. . Izvestiya tekhn.nauk

Debatable issue in the spinning theory of fibrous materials. 1981.  
prom. 20 no.5:33-35 My '81. (Nita 1,11)  
(Spinning)

POLYAK, M.A.; GLIKMAN, L.Sh.; ZIMIN, I.A.; DEMIDOV, G.Z.

Development and use of chafer fabrics with a new yarn structure  
in the manufacture of tires. Kauch. i rez. 22 no.10:50-52 0 '63.  
(MIRA 16:11)

1. Yaroslavskiy tekhnologicheskii institut i Yaroslavskiy  
shinnyy zavod.

GLIKMAN, L.S.; IOANESTAS, Yu.R.; IOANNESYAN, E.A.

Using turbines with falling pressure lines and axial grill  
pumps. Neft. khoz. 41 no.2:13-19 F '63. (MIRA 17:2)

GLIKMAN, L.S.

The position occupied by lamnoid sharks in the system of  
Elasmobranchii. Dokl.AN SSSR 108 no.3:555-557 Ky '56.(MLRA 9:8)

1. Geologicheskii muzey imeni A.P. Karpinskogo Akademii nauk  
SSSR, Leningrad. Predstavleno akademikom I.I. Shmal'gauzenom.  
(Sharks) (Elasmobranchii)

GLIKMAN, L.S.

~~Phylogenetic development of the genus Anacorax. Dokl. AN SSSR 109~~  
Phylogenetic development of the genus Anacorax. Dokl. AN SSSR 109  
no.5:1049-1052 Ag. 1956. (MLRA 9:10)

1. Geologicheskii muzei imeni A.P. Karpinskogo Akademii nauk SSSR.  
Predstavleno akademikom I.I. Shmal'gauzenom.  
(Sharks, Fossil)

GLIKMAN, L.S.

Importance of small auxiliary teeth in sharks of the Lamnidae and  
Scapanorhynchidae families in connection with the classification  
of shark teeth. Trudy Geol. muz. AN SSSR no.1:103-109 '57.  
(Sharks) (MIRA 11:4)

GLIKMAN, L.S.

Genetic connection between the families Lamnidae, Odontaspidae,  
and new genera of upper Cretaceous lamnids. Trudy Geol. muz.  
AN SSSR no.1:110-117 '57. (MIRA 11:4)  
(Sharks, Fossil)



GLIKMAN, L.S.

Age of the phosphorite horizon in the vicinity of Krasnyy Yar,  
Stalingrad Province. Trudy Geol. muz. AN SSSR no.1:118-120 '57.  
(Stalingrad Province--Phosphorites) (MIRA 11:4)



17(0)

AUTHOR:

Glikman, L. S.

331,76-121-1-1/11

TITLE:

On the Rate of Evolution of Lamnoid Sharks (O tempakh  
evolyutsii lamnoidnykh akul)

PERIODICAL:

Doklady Akademii nauk SSSR, 1958, Vol 123, No 3, pp 568-571  
(USSR)

ABSTRACT:

As a rule convergency is underrated by palaeontologists, if they are accustomed to ascribing a very long existence to recent and extinct species of the shark. Convergency can only be taken into consideration when examining the degree of evolution of single characteristics at different times. If the latter is not considered serious errors arise. Characteristics of recent forms are superimposed on fossil forms; in this way recent species are connected with fossil forms of only distantly related groups, whereas fossil species of closely related groups, when showing striking systematic differences, are separated from each other and united with distant groups. The author endeavours to prove these statements by the example of the sharks mentioned in the title. By comparing the fossil lamnides (Oxyrhina mantelli) with the Carcharhinidae, although they are genetically not connected with the lamnides, the author concludes that in

Card 1/3

On the Rate of Evolution of Lamnoid Sharks

SNV/20-123-5-11/54

various groups of sharks with incisors independent of each other teeth of the same type could develop. From the fact that in the recent lamnides the furthest posterior teeth are inclined to reduction, and that the teeth formula varies considerably, not only from species to species, but even within one species, the author concludes that all recent lamnidae species appeared a long ago in the course of evolution. These particularities separate the recent lamnides sharply from the fossil mantelli, *Cxyrhina mantelli*. It originates from *Isurus denticulatus*, which itself originated from the genus *Paralurus*. This whole group is united by the author into a new family *Cretoxyrhinidae* fam. nov., which probably descended from the family *Orthacodidae*. The likely ancestor of *Cretoxyrhinidae* *Paralurus macrophiza* (Pictet and Campiche) Bluck lived only in the Altai. No species reached the present. All of them seem to have become extinct during the Upper Cretaceous Period. For *C. mantelli* the author establishes a new genus, *Cretoxyrhina* gen. nov. After morphological-phylogenetical observations the author describes another new genus, *Cretohalama* nov. gen. for the species already known - *Lamna appendiculata* from the formation of Saratov; this may possibly also belong to a special family. In conclusion,

Card 2/5

On the Rate of Evolution of Lamnoid Sharks

327, 22-173-3-17/54

the teeth of the genus *Carcharodon* are compared with those of *Cretacyrhina denticulata* (Cenomanian of Saratov), *Lamna* and *Odontaspis* (recent). Certainly the evolution of sharks has been turbulent, and the forms succeeded one another quickly. This is once more proved by the phylogenetic line *Palaeocerax*-*Anacerax*.

ASSOCIATION: Geologicheskii muzey im. A. I. Karpinskogo Akademii nauk SSSR  
(Geological Museum imeni A. P. Karpinskii of the Academy of Sciences, USSR)

PRESENTED: August 10, 1956, by I. I. Shmal'gauzen, Academician

SUBMITTED: July 14, 1956

Card 3/5

Reading Bill 111 for the 100th Congress, November 2. He was 65 and 1961.

[illegible]

GLIKMAN, L.S., kand. biolog. nauk

Sharks. origin and evolution. Priroda 52 no.12 57-62 1963.  
(MIRA 17:8)

1. Geologicheskii muzey im. A.P. Karpinskogo, Leningrad.

VERTSMAN, G.Z., kandidat tekhnicheskikh nauk; GLIEMAN, M.S., kandidat tekhnicheskikh nauk.

Overall planning of transportation centers. Zhel.dor.transp.39  
no.1:42-45 Ja '57. (MLRA 10:2)  
(Railroads---Stations) (Freight and freightage)



VERTSMAN, G.Z., kand. tekhn. nauk; GOMOLYAKO, I.M., kand. tekhn. nauk;  
GLIKMAN, M.S., kand. tekhn. nauk; KORNAKOV, A.M., kand. tekhn. nauk

"Collected papers of the Moscow Research Institute of Railroad  
Engineering; designing railroad stations and yards." Reviewed by  
G.Z.Vertman, Transo. stroi. 8 no. 7:31-32 J1 '58. (MIRA 11:7)  
(Railroads--Stations)  
(Railroads--Yards)

KORNAKOV, A.M., kand.tekhn.nauk; GLIKMAN, M.S., kand.tekhn.nauk

Modern designs of hump marshalling yards. Transp.stroi.  
10 no.8:43-47 Ag '60. (MIRA 13:8)

(Railroads--Hump yards)

PEREYEDCHIKOV, Vasilii Mikhaylovich; ZOSIMOV, Dmitrii Mikhaylovich,  
glavnyi zootekhnik; GLIMAN, N., red.; ISUPOVA, N., tekhn. red.

[Our experience in the loose housing of cows] Nash opyt bespriviaznogo  
soderzhaniia korov. Simferopol', Krymizdat, 1960. 21 p.

(MIRA 14:12)

1. Direktor sovkhoza im. Timiryazeva, Krasnogvardeyskogo rayona (for  
Pereyzedchikov).

(Dairy barns)

GRIDINA, Aleksandra Vasil'yevna, doyarka; GLIKMAN, N., red.; FISENKO, G.,  
tekhn. red.

[Five thousand ig. of milk from our cows] 5000 kg. moloka ot korovy.  
Simferopol', Krymizdat, 1960. 25 p. (MIRA 14:12)

1. Kolkhos "Ukraina" Kirovskogo rayona (for Gridina).  
(Milk)

RUBINA, Vera Aleksandrovna, kand. sel'khoz.nauk; GLIKMAN, N., red.:  
FESENKO, A., tekhn. red.

[Repair and restoration of vineyards] Remont i vosstanovlenie  
vinogradnikov. Simferopol', Krymizdat, 1960. 37 p.

(MIRA 12:12)

(Viticulture)

BOLGAREV, Pavel Timofeyevich, prof., zasluzhennyy deyatel' nauki USSR;  
ZHILYAKOVA, O., red.; GLIKMAN, N., red.; PISENKO, Z., red.;  
red.; ISUPOVA, N., tekhn.red.

[Viticulture] Vinogradarstvo. Simferopol'. Krymizdat, 1960.  
573 p. (MIRA 13: )

1. Krymskiy sel'skokhozyaystvennyy institut im. I. Kalinina (for  
Bolgarov).  
(Viticulture)

GALAKHIN, Aleksandr Ivanovich; GLIKMAN, N., red.; ISUPOVA, N.,  
tekhn. red.

[Backyard apiary] Priusadebnaia paseka. Simferopol', Krim-  
izdat, 1960. 106 p. (MIRA 15:3)  
(Bee culture)

NIKOLAYEV, Petr Ivanovich, starshiy nauchnyy sotr.; GLINSKY, N., red.;  
ISUFOVA, N., tekhn. red.

[Pests and diseases of grapes] Vrediteli i bolezni vinograda.  
Izd. 2., perer. Simferopol', Krymizdat, 1961. 146 p.  
(MIRA 15:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut vinodeliya i  
vinogradarstva "Tagarach" (for Nikolayev).  
(Grapes--Diseases and pests)



MALAKHOVSKIY, V.F.; NEARGORODSKIY, S.D.; PUSHTISKIY, L.A.; GLINEN, N.,  
red.; FISENKO, A., tekhn. red.

[Mineral resources of the Crimea and their utilization in  
chemical industries] Mineral'nye bogatstva Kryma - khimiche-  
skoi promyshlennosti. Simferopol', Krymizdat, 1959. 37 p.  
(MIRA 15:11)

(Crimea—Mines and mineral resources)  
(Chemical industries)

POPOV, K.S., kand. tekhn. nauk; GAYVORONSKAYA, Z.I.; UMANETS, V.P.;  
NILOV, V.I.; VALUYKO, G.G.; OKHREMENKO, N.S.; ZHDANOVICH,  
G.A.; DATUNASHVILI, Ye.N.; SERBINOVA, N.I.; MARCHENKO, G.S.;  
KURAKSINA, N.K.; TYURIN, S.T.; TYURINA, L.V.; KRINCHAR, M.S.;  
RAZUVAYEV, N.I.; OGORODNIK, S.T.; MIKHAYLOV, S.M.;  
ZHILYAKOVA, O., red.; GLIKMAN, N., red.; FISENKO, A., tekhn.  
red.;

[Wine making, manual for the workers of wineries on state and  
collective farms in the Crimea] Vinodelie; rukovodstvo dlia ra-  
botnikov vinodel'cheskikh zavodov sovkhozov i kolkhozov Kryaa.  
Simferopol', Krymizdat, 1960. 415 p. (MIRA 16:3)  
(Crimea--Wine and wine making)

[illegible]

(Source: Encyclopedia of the History of Ideas, Ideals, and Ideals, by John P. D. S. S., I.A. 18:1)

GLIKMAN, S.A.; AVER'YANOVA, V.M.; KHOMUTOV, L.I.

Structure of acetylcellulose solutions. Vysokom.soad. 5 no.4:  
598-604 Ap '63. (MIFA 16:5)

1. Saratovskiy gosudarstvennyy universitet imeni N.G.Chernyshevskogo.  
(Cellulose acetates)

GLIKMAN, S.A.

On globules, bundles, and gels. Koll. zhur. 25 no.4:500-  
502 J1-Ag '63. (MIRA 17:2)

1. Saratovskiy universitet, kafedra fiziko-khimicheskikh  
polimerov.

GLIKMAN, S.A.; ROOT, L.A.

Volume effects of the dilution of high polymer solutions. Uch.  
zap. SGU 75:110-113 '62. (MIRA 17:3)

GLIKMAN, S.A.; SHUBTSOVA, I.G.

Methods of the physicochemical characteristics of agar. Uch.  
zap. SGU 75:113-116 '62. (MIRA 17:3)

SHUBTSOVA, I.G.; KUDASHOVA, R.V.; GLIFMAN, S.A.; Prinizali uchastiye: Ponomareva, L.; CHERNIKOVA, Ye.; SILKINA, N.

Effect of metal ions and of the anions of organic acids on the mechanical properties of agaroid gels. Koll.zhur. 25 no.6:728-731 N-D '63.

(MIRA 17:1)

1. Saratovskiy universitet, kafedra fiziko-khimii polimerov.



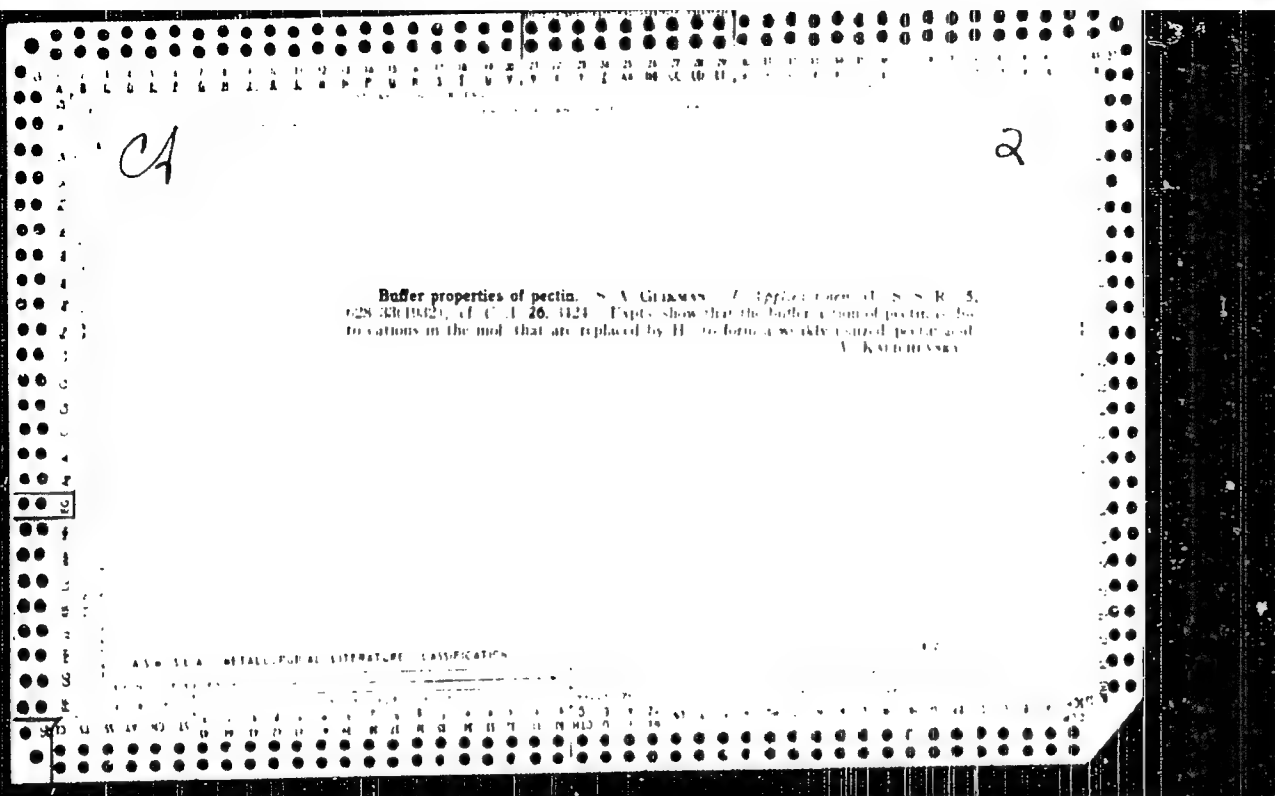
Colloidal pectin. S. A. GLERMAN. *J. Gen. Biol. Chem.* (U. S. S. R.), 4, 1041-50 (1961). -Pectin has no chem. action on sugar. The effect of sugar on formation of pectin gels is due to the weakening of the asson characteristics of water media. Cations have a considerable effect on the gel forming properties of pectin. The dimensions of micelles remain unchanged and the differences must be due to the changes in compn. of the dissolved pectin. Possibilities of improving the gelling characteristics of pectins from different fruits are of com. interest and methods ought to be developed for direct utilization of certain ones now considered impossible in the confectionery industry. The  $pH$ , not the nature of the acid, is important in confectionery practice. However, when the  $pH$  is high the individual properties of different acids must be investigated separately.

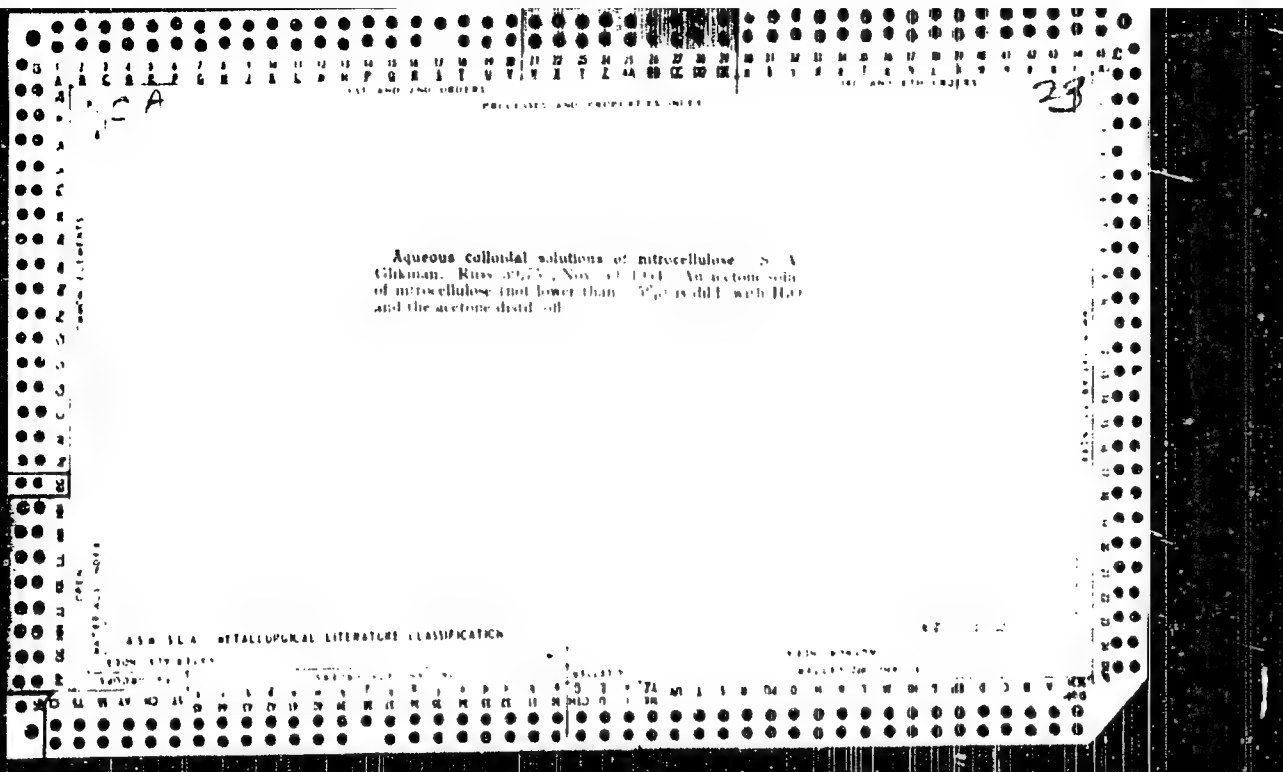
V. K. KUCHENSKY

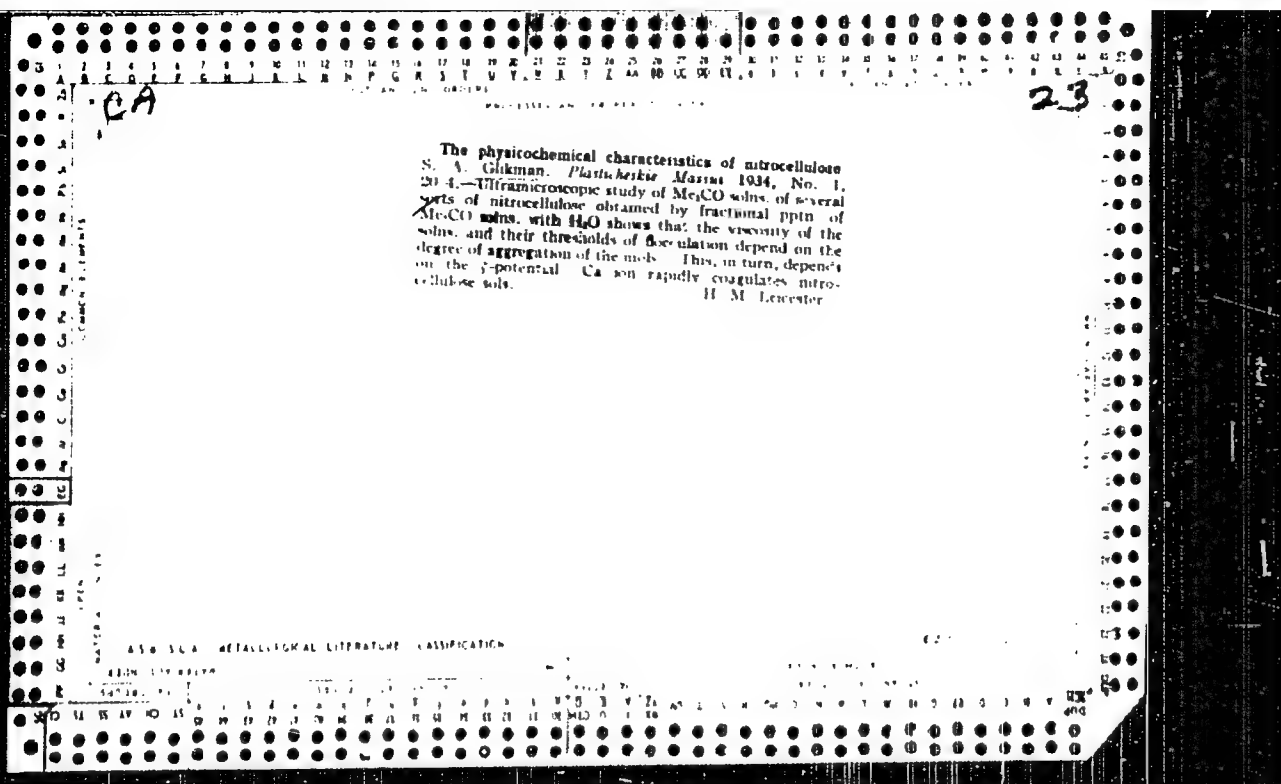
ASH 55.4 METALLOGICAL LITERATURE CLASSIFICATION

(1) 2

thixotropic viscosity of cellulose esters. I. The theory and experimental data  
on anomalous viscosities of colloidal solutions. S. A. GRIGMAN *Plasticheskie Massy*  
1932, No. 2 4, 10-23. A review. The term "thixotropic viscosity" is suggested for  
the anomalous viscosity of sols that are about to become gels. H. M. TAYLOR







GLIKMAN S. A.

The structure of nitrocellulose solutions. S. A. Glikman, *J. Phys. Chem.* (U.S.S.R.), **68**, 2895 (1964).  
Viscosity measurements on nitrocellulose acetate and nitrocellulose benzoate show that solns. having macro- or microscopic aggregates do not obey Poiseuille's law.  $\text{Ca}^{2+}$  ions adsorbed on the nitrocellulose (II) strongly increase the viscosity, but  $\text{Na}^{+}$  ions do so only slightly. With increasing concn. of I the  $\zeta$  potential decreases. Addn. of salts of  $\text{Ca}$  or of acid also lowers the  $\zeta$  potential, but alkali increases it. The viscosity of various fractions obtained by partial pptn. of the soln. (by adding water to the  $\text{Me}_2\text{CO}$ ,  $\text{CHCl}_3$  or  $\text{C}_6\text{H}_6$  solns. used) is not always in the same order as the size of the particles obtained, which constantly decreases, but depends also upon the concn. of the soln. From any sample of cellulose it is possible, by using a dil.  $\text{Me}_2\text{CO}$  soln. and slowly adding water, to prepare a hydrophobic sol. After concn. *in vacuo* a fairly stable 2% soln. can be obtained. It is rapidly coagulated by mineral salts, and has a  $\zeta$  potential strongly dependent on acids added. F. H. R.

Concentrated aqueous dispersions of nitrocellulose.

S. A. Glikman and A. N. Ilyayevskii. Russ. 44,678, 1  
Oct. 31, 1935. Pectin is added to a dil. nitrocellulose  
dispersion and thereafter water is vaporized to form a concentrated  
dispersion.

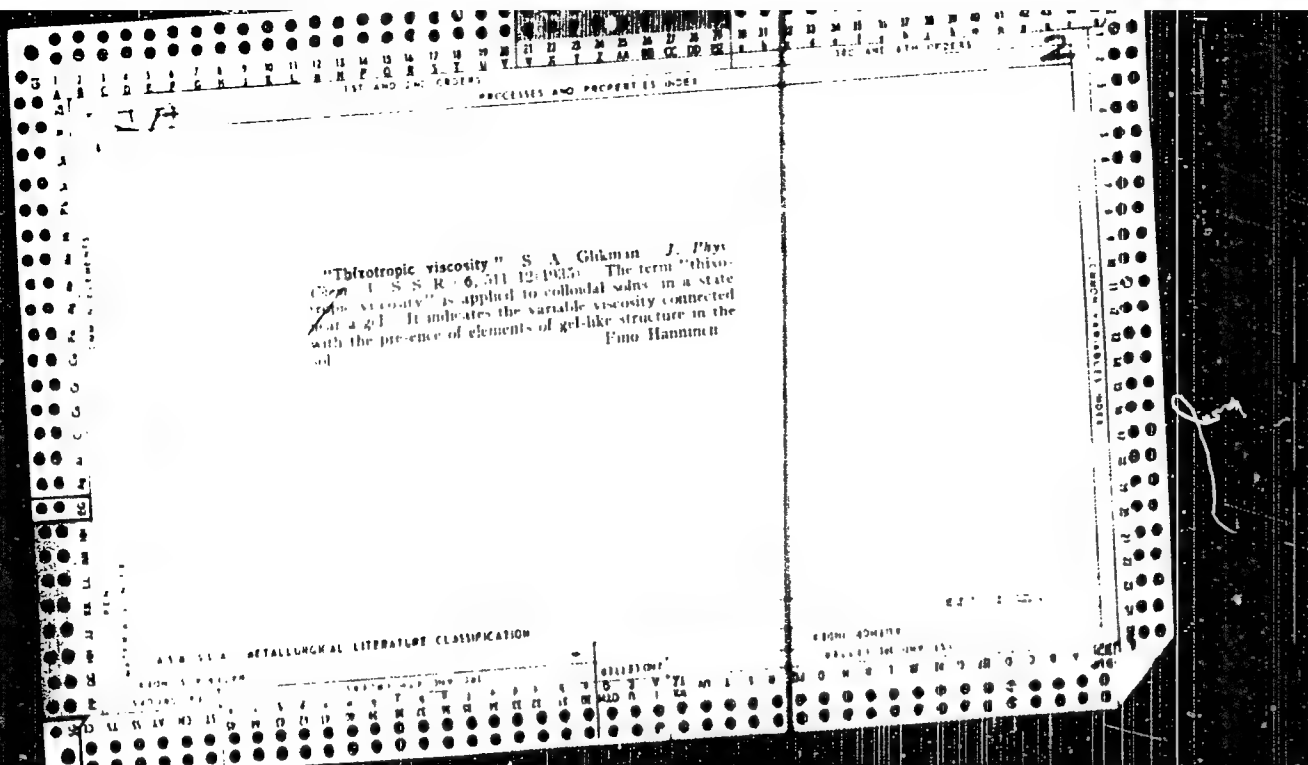
BC

A-3

Potential and stability of sols of cellulose ethers. S. A. GLUKHAN and E. S. MEDVEDKOV (Kolloid. Zhur., 1935, 1, No. 2, 3-15).—The cataphoresis of various particles covered with benzyl- or ethyl-cellulose or with cellulose nitrate has been studied microscopically. The electrokinetic potential  $\zeta$  is very small in org. liquids but high in  $H_2O$ . In  $H_2O-COMe_2$  mixtures  $\zeta$  increases abruptly at the same concn. as that at which the viscosity shows an abrupt decrease. The stability of lyophilic sols is not affected by  $\zeta$ . J. J. B.

ASAC-50-A METALLURGICAL LITERATURE CLASSIFICATION





The nature of cellulose ether solutions. A. Glikson  
*Vysokomol. Soedin.* 1964, 6, 1, 100-101.  
 The nature of cellulose ether solutions. A. Glikson  
 and M. M. Leister. *Vysokomol. Soedin.* 1964, 6, 1, 100-101.  
 treated with alk. HCl (concentrations of 0.1-1.0M) and then  
 solns. have lowered viscosity. Prolonged treatment  
 with HCl causes considerable degradation. Fractional  
 pptn. of the ether from EtOH-C<sub>6</sub>H<sub>6</sub> solns. by EtOH gives  
 fractions which differ little in degree of etherification, and  
 there are no regularities in deviation from av. particle size.  
 The viscosity and mech. properties decrease from the 1st  
 to the last fraction. The properties of the 1st fraction  
 are better than those of the original ether. These facts  
 can be explained by the theory of Meyer and Mark. In  
 coagulating the ether it is found that with inc. temp.  
 more of the coagulating component must be added to  
 cause pptn. When C<sub>6</sub>H<sub>6</sub> solns. of the ether are treated  
 with small amounts of EtOH, the viscosity falls sharply, and  
 when 1-2% EtOH has been added to a 1% soln. of the ether  
 in C<sub>6</sub>H<sub>6</sub>, to a 10% soln., the viscosity becomes constant  
 until coagulation occurs. The stability of the solns. de-  
 pends on an adsorption equl. Increase in the concn. of  
 components poorly absorbed by the nonpolar groups of  
 the ether leads to partial desorption of the C<sub>6</sub>H<sub>6</sub>. As a  
 result pptn. occurs, since the forces between the particles  
 become greater than those between particles and solvent.  
 A rise in temp. reverses this effect. H. M. Leicester

The use of water dispersions of nitrocellulose for preparing leather substitutes. A. Braslavskii and S. Glkman. *Narodnyi Komissariat Tsvetel' Prom. S. S. S. R., Nauch.-Issledovatel. Inst. Plasticheskikh Mass, Plasti. Massy, Shemik 2*, 87 (9) (1947). A more concentrated Me<sub>2</sub>CO soln. of nitrocellulose than usual can be obtained if the viscosity is lowered by treatment with 0.25-0.40% NH<sub>3</sub> soln. at 65-85° for 6-7 hrs. A 3% Me<sub>2</sub>CO soln. is prepd. from this and treated with an equal vol. of H<sub>2</sub>O. Then 5-8% of the dry wt. of nitrocellulose of pectin or agar agar is added and the soln. is evapd. to 15-20% concn. The Me<sub>2</sub>CO can be recovered completely. Cloth treated with this product is as satisfactory for mfg. shoes as if the nitrocellulose had been applied in org. solvents.

H. M. Leicester

**Mechanism of coagulation of cellulose ester sols.** S. A. GLIKMAN (J. Phys. Chem. Russ., 1938, 11, 492—511).—If a solution of cellulose benzoate (I) in EtOH + C<sub>6</sub>H<sub>6</sub> is pptd. by EtOH or light petroleum, or a solution of cellulose nitrate (II) in C<sub>6</sub>H<sub>6</sub> by H<sub>2</sub>O or C<sub>6</sub>H<sub>14</sub>, the amount of coagulating liquid required increases with rise of temp. The similar behaviour of H<sub>2</sub>O and C<sub>6</sub>H<sub>14</sub> etc. shows that the polarity of the coagulant is irrelevant. Addition of small amounts of EtOH to a solution of (I) in C<sub>6</sub>H<sub>6</sub> causes a contraction, and that of large amounts an expansion, but the coagulation point is not observable. The  $\eta$  of (I) in C<sub>6</sub>H<sub>6</sub> is reduced by EtOH; there is no change of  $\eta$  at the coagulation point. The  $\eta$  of (II) in C<sub>6</sub>H<sub>6</sub> is increased by light petroleum. The effect of Et<sub>2</sub>O on the  $\eta$  of (II) in EtOH is complicated. Addition of H<sub>2</sub>O causes expansion in solutions of (II) in C<sub>6</sub>H<sub>6</sub>.

J. J. B.

PROCESSING AND PREPARATION

The effect of electrolytes on the viscosity of nitrocellulose. S. A. Glikman. *Izv. Akad. Nauk SSSR Khim. 12* 18 1968. A summary of previously obtained and published data. The interexchangeable adsorption of cations of mineral salts in certain cases changed the viscosity of nitrocellulose. The observed change in viscosity does not depend directly on the change in cohesive forces between chain-like molecules but represents a secondary phenomenon connected with heterogeneity and disorder of the system. Seven references. A. A. P.

ASH S L A METALLURGICAL LITERATURE CLASSIFICATION

1200 110 63 100

1200 60 110

BC

Hydrocolloids of pectin and organosols of cellulose esters. S. A. GLEMAN (J. Phys. Chem. Russ., 1938, 11, 678-684).—The relative viscosity of aq. pectin solutions increases with concn. and is not affected by additions of EtOH which do not produce gelation. The amount of EtOH required for gelation increases with temp. and the concn. of pectin; it is raised by Na<sup>+</sup> and lowered by Ca<sup>++</sup>. The gelation involves no vol. change. These effects are similar to those observed with cellulose esters (cf. A., 1938, I, 573).  
J. J. B.

The threshold of structural viscosity of cellulose ether solutions. S. A. Glikman, *J. Phys. Chem.* (U. S. S. R.) 11, 825 (1957), *J. C. I.* 31, 41089. For the investigation there were used sols of fractions I and IV of OXK nitrocellulose in Bu acetate and in nitrobenzene, fraction I and IV of medium viscous French benzylcellulose in a 1:1 mixt. of alc. and benzene, and one sample of the non-fractionated high viscosity nitrocellulose in acetone and nitrobenzene. The results showed that the beginning of the anomalous flow (threshold of structural viscosity) coincides with the break in the coordination curve, and that the relationships  $P = pr^2$  and  $100V_{\text{rel}} = a[10/r + r/10]t$  obtained by Reiner (*J. I.* 28, 3944; 29, 13019), and by Rabinowitch (*J. I.* 28, 3949) for sols of lyophobic colloids also hold true for sols of nitrocellulose and of benzylcellulose. Here  $a$  = viscometer correction,  $p$  = pressure in dynes/cm<sup>2</sup>,  $r$  and  $t$  = radius and length of the capillary in cm,  $Q$  = vol. of the ball in cc,  $t$  = time in sec,  $\eta_0$  = viscosity of the solvent in abs. units. Reiner's hypothesis about the lower limit of anomalous flow does not apply for sols of the cellulose ethers. In cellulose ethers the lower limit corresponds to that stage where the velocity of recombination of the associates is less than the velocity of their destruction. The detn. of viscosity changes from pressure (performed in Ostwald's viscometer with different capillaries) showed that the limiting flow velocity corresponding to the threshold of structural  $\eta$  is higher for benzylcellulose sols than for nitrocellulose

sols at equal size of the particles. It is higher for the lower fractions of an ether, for the lower content, and for the sol in better solvent. All these relationships, as well as the change of the limiting pressure displacement and the degree of the viscosity drop, are explained by Reiner's hypothesis. Six plots, two tables and ten references are given. W. R. Henn

Osmotic pressure and size of aggregation in cellulose ester solutions. S. A. GLERMAN (J. Phys. Chem. Russ., 1938, 12, 31-33; cf. A., 1939, 1, 77).—The osmotic pressure *Π* of cellulose nitrate in  $\text{COMe}_2$  and of cellulose benzoate in  $\text{EtOH} + \text{C}_6\text{H}_6$  was measured below 1.5% of ester; a cellulose membrane was used. For two solutions *Π* was independent of concn. below 0.8%; for these solutions  $\eta$  increased linearly with concn., whilst it increased more rapidly for other solutions. The mol. wts. of the fractions are calc.

J. J. B.

**J. J. B.**



LA 23

The nature of cellulose ester solutions, nitrocellulose fractions and aqueous sols. IV. S. A. Glikman. *Plasticheskie Massy, Khim. Referat. Zhur.* 1940, No. 3, 115. A discussion is given of the nature and properties of aq. hydrophobic sols of nitrocellulose (I) which were obtained by the method of consecutive pptn. of I from acetone soln. with H<sub>2</sub>O and subsequent removal of acetone in vacuo or by ordinary evapn. at room temp. Stable 0.1-0.2% aq. sols of I are obtained by this method; 2% sols can be obtained by further concn. of such sols by distg. off acetone and H<sub>2</sub>O. The formation of such sols from various fractions of I is connected with the "threshold of flocculation," i. e., the limiting concn. of I in acetone at which no macroaggregates are formed with a large excess of H<sub>2</sub>O. The "threshold of flocculation" is the higher, the shorter the chain of I, which is characterized according to Staudinger by the specific  $\eta$  of the sols. The hydrophobic sols of I possess properties analogous to those of typical hydrophobic colloids and obey the coagulation rule of Schulze-Hardy. W. R. Henn

2

COMMON ELEMENTS

CORRELATION OF METALS

ASPH-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPLICABILITY OF THE PHASE RULE TO SOLS OF LYOPHILIC COLLOIDS. S. A. GILMAN, Colloid J. (U. S. B. R.) 6, 421-4 (1940); cf. C. A. 35, 3047.—O. disagrees with the conclusions of Kargin, et al. (cf. C. A. 34, 300\*). O. maintains that lyophilic sols can be thermodynamically stable and unstable, but represent systems qual. different from true sols. The phase rule is applicable to both systems. The formation of thermodynamically stable associates (in equil. with true soln. of chain-like mols.) or thermodynamically unstable aggregates should be accounted for as the formation of a new phase. A. A. Polgorny



**Nature of lyophilic sols.** S. A. Glzman, *Acta Physicochim. U. R. S. S.* **13**, 379-372 (in German); *Colloid J. (U. S. R. S.)* **6**, 351-401 (1944).—On the basis of a discussion of the properties of various nitro- and benzylcellulose and of various pectin sols conclusions are drawn as to their nature. Although very dil. sols. of highly polymerized substances are true sols., the more concentrated ones take place at higher concns., the more condensed ones always be considered as colloid. sols. with suspended solid phase and as univariant systems. Stability is possible only if the attractive forces toward the solvent are greater than toward other polymer mols. Coagulation is due to shift of the adsorption equil. on the solvated particles. P. H. Rathmann

F. H. KATHMANN

ASME-52A METALLURGICAL LITERATURE CLASSIFICATION

FA 78T5

GLIKMAN, S. A.

USSR/Chemistry - Colloids  
Chemistry - Polymers

May/June 1948

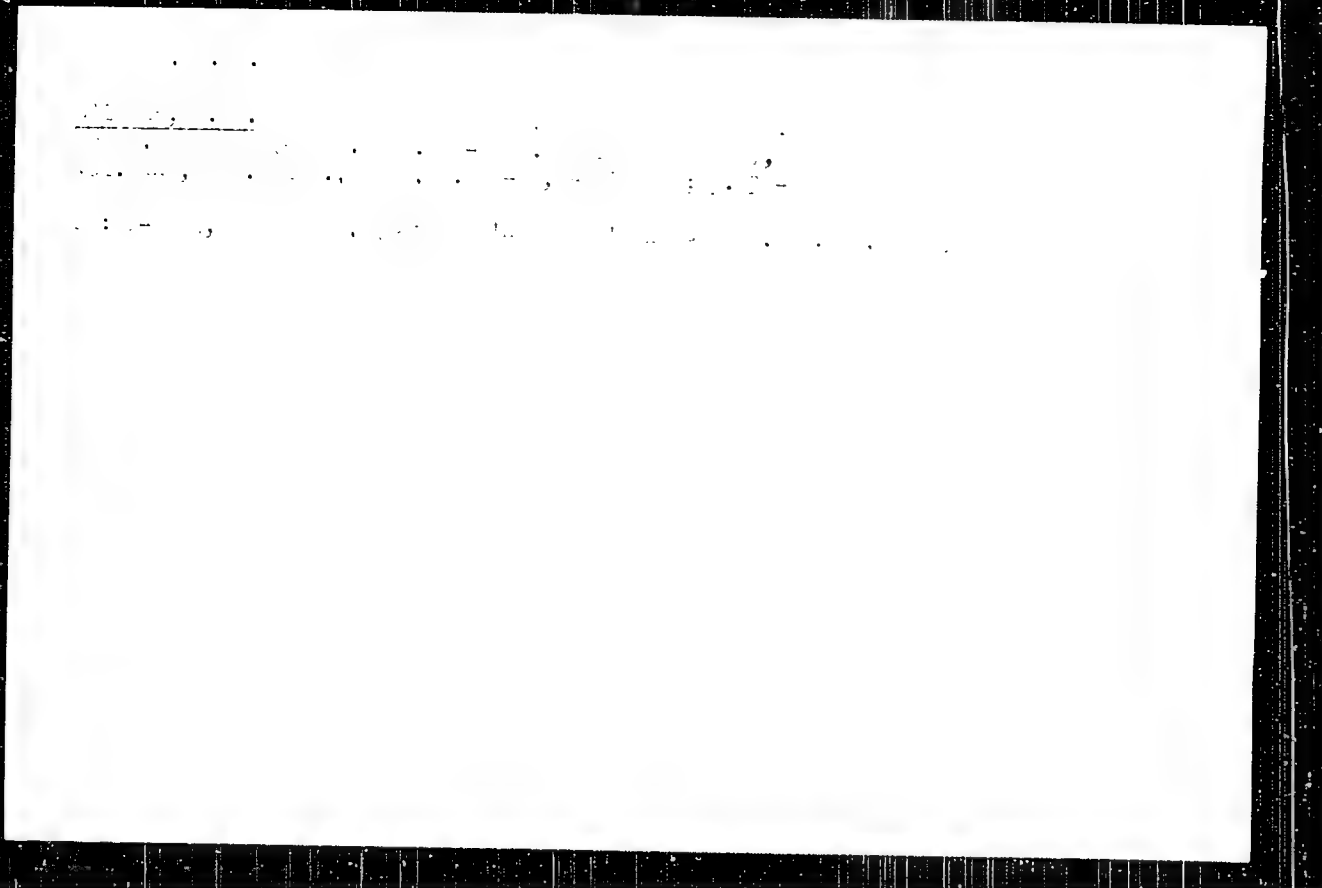
"Research on the Lyophilic Colloid Systems, II,  
Lyophilic and Lyophobic Sols of High Polymers," S. A.  
Glikman, L. V. Komarova, Lab of Colloidal Chem,  
Saratov State U, 13 pp

"Kolloid Zhur" Vol X, No 3

Details studies of the lyophobic colloidal systems of  
high polymers. Used nephelometric system to deter-  
mine the degree of dispersion in the sols. Sub-  
mitted 26 Dec 1946.

~~78T5~~





**"APPROVED FOR RELEASE: 09/24/2001**

**CIA-RDP86-00513R000515410001-4**

**APPROVED FOR RELEASE: 09/24/2001**

**CIA-RDP86-00513R000515410001-4"**







"APPROVED FOR RELEASE: 09/24/2001

CIA-RDP86-00513R000515410001-4

APPROVED FOR RELEASE: 09/24/2001

CIA-RDP86-00513R000515410001-4"

"APPROVED FOR RELEASE: 09/24/2001

CIA-RDP86-00513R000515410001-4

APPROVED FOR RELEASE: 09/24/2001

CIA-RDP86-00513R000515410001-4"

USSR/Chemistry - Dilatometers Apr 49  
Chemistry - Heat of Dilution, of Polymers

"Thermodynamic Curves of the Energy Effect of Diluting High Polymers by the Dilatometric Method,"  
S. A. Glinkman, L. A. Root, Saratov State U Imeni  
M. G. Chernyshevskiy, 4 pp

"Dok Ak Nauk SSSR" Vol LXV, No 5

Changes in heat content have previously been determined calorimetrically or indirectly, using temperature coefficient of osmotic pressure. Authors studied volume effect, an index of energy effect, by dilatometric method. Results for the systems nitrocellulose-acetone, nitrocellulose-

39/49T17

USSR/Chemistry (Contd)

Apr 49

ethylacetate, and ethylcellulose-ethylacetate show substantial energy effect of dilution in certain regions of low concentration, and a marked change of certain physical characteristics of the solutions, e.g., viscosity. Submitted by  
Acad A. N. Frumkin, 12 Feb 49.

39/49T17

PA 150789

LIRMAN, S. A.

USDA, Physics - Test Techniques

21 Jul 49

Viscosity

Use of the following falling balls for the measurement of the viscosity and thickness of ethylcellulose solutions. The following are the results of the tests of the falling balls in solutions of ethylcellulose in benzene. Conducted by David F. A. Robinson 23 May 49.

See also Report No. 3

Used method of falling balls suggested by Huggins in 1924 to determine dependence of apparent viscosity upon shear stress. Used seven steel balls of different radii (0.0625 - 0.3591 cm) to determine structural viscosity of ethylcellulose sols and

150789

USDA, Physics - Test Techniques (Contd) 21 Jul 49

concentration dependence of the viscosity of ethylcellulose and water cellulose sols. Gives table of dependence of apparent viscosity upon weight of falling balls in solutions of ethylcellulose in benzene. Conducted by David F. A. Robinson 23 May 49.

151

CA

Molecular weight of pectin S. A. Chikman and S. I.

V. Orlov (N. G. Chernyshev State Univ., Saratov). Dokl. Akad. Nauk S.S.S.R. 71, 505 (1960). Detn. of osmotic pressure of pectin solns. contg. 1% NaCl (for elimination of bacterial growth during the long expts.) gave for the various fractions obtained by aq. RCOH extr. mol. wts. ranging from 4000 to 33,200. The results are almost 40% below those obtained using the const. of Owens, et al. (C.A. 40, 2080) for detn. of mol. wt. vs. osmotic pressure. The Owens formulation held only for the lowest fractions and curves rather than straight lines resulted from plots of  $\log \eta$  against viscosity; the location of the "elbows" in the curves was affected by the mol. wt. analogously to the observed facts with other chain polymers. Mol. wt. is an insufficient criterion for detn. of colloidal properties of pectin, as the relative positions of polar groups in the chain greatly affect the gel formation. The viscosity equation that is most satisfactory is:  $[\eta] = 1.1 \times 10^{-4} M^{-0.5}$  (L. M. Kozlovskii).

CA

Dilatometric characteristic of effects of dilution of high-polymer solutions. S. A. Glikman and L. A. Root (Sverdlovsk State Univ.). *Zhuk. Obshch. Khim.* (J. Gen. Chem.) 21, 58 (1981). The vol. changes,  $\Delta v$ , on diln. of solns. in (I) nitrocellulose ( $\eta = 1.00$ ) in  $\text{Me}_2\text{CO}$ , (II) the same in  $\text{EtOAc}$ , (III) benzylcellulose in  $\text{C}_6\text{H}_6$ , (IV) ethylcellulose ( $\eta = 1.00$ ,  $\text{EtO}$  48.4%) in  $\text{C}_6\text{H}_6$ , (V) the same in  $\text{EtOAc}$ , (VI) citrus pectin in  $\text{H}_2\text{O}$ , (VII) polystyrene in  $\text{C}_6\text{H}_6$ , (VIII) nitrocellulose in dioxane, were measured by a dilatometric method accurate within 0.001 ml., with the thermostat controlled within  $\pm 0.002^\circ$ . Diln. of I in the concn. range from 15% to 0.025% gives neg.  $\Delta v$ , i.e. contraction. On diln. from 10-15% to close to 0.3%,  $-\Delta v$  values are of the order 0.001-0.006 ml./g., where from 0.3 to 0.25-0.10%,  $-\Delta v$  is 0.01-0.03 ml./g., and the total  $-\Delta v$  on diln. from 10 to 0.025% is 0.059 ml./g. The vol. change corresponding to soln. of nitrocellulose in  $\text{Me}_2\text{CO}$  as indifferent liquid,  $\text{Me}_2\text{CO}$  with dry nitrocellulose in  $\text{C}_6\text{H}_6$  as indifferent liquid, with allowance made for the slight vol. effect of mixing the 2 liquids. The vol. effect of soln. (to about 2%) was thus detd. to 0.116 ml./g. On the other hand, the heat of soln.  $Q$  of the same nitrocellulose in  $\text{Me}_2\text{CO}$  was detd., by direct calorimetry, to 17.0 cal./g., close to literature data of heat of swelling in the same system. On the assumption

of the existence of a direct proportionality between  $\Delta v$  and  $Q$ , the conversion factor  $\Delta v/Q$ , for I, is 0.116/17.0 =  $6.8 \times 10^{-3}$ , and this permits conversion of the observed  $\Delta v$  into heat effects. Similarly, for III,  $\Delta v/Q$  was detd. to  $15 \times 10^{-3}$ . In I, there is a considerable neg.  $\Delta v$  (and evolution of  $Q$ ) in the swelling range; the effect of a subsequent diln., from 10 to 0.1%, is not more than 5% of the integral effect of soln., but further diln. from 0.3 to 0.025% is accompanied by an effect amounting to 25% of the integral effect. System II shows pos.  $\Delta v$ , of an abs. magnitude much smaller than in I, and an inflection in the same concn. range of 0.40-0.20%. IV and V give pos.  $\Delta v$ . In IV the  $\Delta v$  (concn.) curve has an inflection in the range 0.5-0.2%; diln. from 5 to 0.5% gives an expansion of 0.0014 ml./g., diln. from 0.4 to 0.2%, 0.0032, whereas diln. to below 0.2% gives no vol. change. In V, the vol. effects begin to increase at 0.4%; twofold diln. of a 1% soln. gives  $+\Delta v = 0.0008$ , the same diln. of 0.5% soln., 0.0020, and of 0.1% soln., 0.0078 ml./g. III (neg.  $\Delta v$ ) has an inflection at 0.5-0.2%. The integral effect of soln. to a concn. of 0.04% is  $-\Delta v = 0.0213$ , and, consequently, the effect of diln. from 2 to 0.04% is 10% of the integral effect, whereas the effect of diln. from 5 to 0.5% is only 6% of the integral effect. VIII, on diln. from 5% to 0.025%, gave no measurable  $\Delta v$ , and the same applies to VI (from 2-0.2 to 0.1%) and to VII. The diverse effects are interpreted in terms of the obvious inferences about the relative magnitudes of the energies of assocn. and of solvation. N. T.



CP

2

**Effect of metal ions on the elasto-plastic characteristics of ethylcellulose.** S. A. GILKIN and D. A. THOMAS, *Chemically Induced Nuclei* S N S 81, 1969 95 (1965). Ethylcellulose was freed from ionic impurities through repeated coprecipitation with distilled H<sub>2</sub>O from Me<sub>2</sub>CO solutions. FeCl<sub>3</sub>·3H<sub>2</sub>O, CuCl<sub>2</sub>·2H<sub>2</sub>O, and ZnCl<sub>2</sub>·2H<sub>2</sub>O were introduced, respectively, from their aqueous solutions (0.001 M) into the solutions of Me<sub>2</sub>CO, a dialyzed solution of Fe(OHCl)<sub>2</sub>, and a dialyzed solution of Cu(OH)<sub>2</sub>, followed by coagulation with distilled H<sub>2</sub>O. Incorporation of the metal ions did not alter the viscosity- $\dot{\epsilon}$  of the solns in dioxane, C<sub>6</sub>H<sub>6</sub>, and EtOH-C<sub>6</sub>H<sub>6</sub> mixts., but did increase the slope of the  $\log \eta_{sp}/c = f(\dot{\epsilon})$  curves, particularly in C<sub>6</sub>H<sub>6</sub> solns., and the dependence of the effective  $\eta$  on the velocity gradient. The elasto-plastic characteristics were determined in the magnitudes introduced by Rehner and Sedgwick ( $\sigma/\epsilon = 1.46 \cdot 10^4$  (dynes/cm<sup>2</sup>) for gels of 1% ethylcellulose in diethylphthalate, without and with Fe<sup>3+</sup>, Cu<sup>2+</sup>, and Zn<sup>2+</sup> ions). The elasto-plastic modulus  $E$  and  $F$ , the viscosities  $\eta$  and  $\eta_{sp}$ , and the mixing shear stress  $\tau$ , are consistently higher in gels containing the metal ions. This is attributed to a replacement of H bonds between COOH groups by ionic bonds formed by the multivalent metal ions.

S. Thon



GLIKMAN, S. A.

USSR/ Chemistry

Card : 1/1 Pub. 151 - 24/33

Authors : Glikman, S. A., Efremova, O. O., and Averyanova, V. M.

Title : Effect of metal ions on the properties of ethyl-cellulose. Part 3.-  
Dependence of the elastic-plastic properties of ethyl-cellulose upon  
its sodium-ion content

Periodical : Zhur. ob. khim. 24/8, 1427 - 1432, August 1954

Abstract : The effect of  $\text{Na}^+$  ions on the viscosity and other properties of ethyl-cellulose, was investigated. It was established that all elastic-plastic characteristics (elastic limit, modulus of elasticity and viscosity) of ethyl-cellulose increase during the introduction of  $\text{Na}^+$ . The effect of  $\text{Ca}^{++}$  ions on the properties of ethyl-cellulose was found to be greater than that of  $\text{Na}^+$ . Six references: 5 USSR and 1 USA (1938 - 1952). Tables; graphs.

Institution : State University, Saratov

Submitted : July 13, 1954

USSR/Chemical Technology. Chemical Products and Their Application -- Wood chemistry products. Cellulose and its manufacture. Paper, I-23

Abst Journal: Referat Zhur - Khimiya, No 2, 1957, 6278

Author: Yefremova, O. G., Glikman, S. A.

Institution: Saratov University

Title: Effect of Metal Ions on Properties of Ethyl Cellulose

Original

Publication: Nauch. yezhegodnik za 1954 g. Saratovsk. un-t., Saratov, 1955, 554-556

Abstract: See also Referat Zhur - Khimiya, 1955, 38999, 50686; 1956, 20951

Card 1/1

GLIKMAN, S.A.

9103. Dielectric study of the swelling of acrylonitrile-butadiene and of polyvinyl butyral. L. A. Riser and S. A. Glikman. *Macromolecules*, 1968, 1, 558-60; *Russ. Zhur. Khim.*, 1968, 44, 864-65. The authors studied the swelling of SKN-20 and SKN-40, and the swelling and dissolving of polyvinyl butyral. Measuring the volume of the system SKN-benzene, the absorption of benzene on the butadiene groups taken place with partial destruction of the mutual bonds after swelling in methanol, which solvates the nitrile groups. The solvation and absorption explain the different volume effects during the solution of polyvinyl butyral in benzene, alcohol and its swelling in benzene with water.

382011X34.003104

MT  
MT

4E  
4E  
4E

AID P - 573

Subject : USSR/Chemistry

Card 1/1 Pub. 152 - 12/16

Authors : Glikman, S. A., O. G. Yefremova, M. S. Kudryashova,  
and A. B. Markman

Title : Effect of sodium and calcium ions on the thermostability  
of ethyl cellulose

Periodical : Zhur. prikl. khim. 28, 8, 877-880, 1955

Abstract : Treatment with HCl (0.5%) at 60°C for 2 hrs. decreased  
the thermostability of cellulose significantly. The  
viscosity of cellulose was 0.23. Addition of Na-or  
Ca-ions increases the thermostability of ethyl cellulose,  
which is ascribed to neutralization of the carboxyl  
groups present in ethyl cellulose. Two diagrams, 4  
references, 1 Russian (1951).

Institution : None

Submitted : Ja 9, 1954

GLIMAN, V. A.; Root, I.A.

"On the Nature of the Solvation of High Polymers in Mixtures of Solvents"  
(O prirode sol'vatsii vysokomolekulyarnykh soedyneniy v smesyakh rastvoriteley) from the  
book Trudy of the Third All-Union Conference on Colloid Chemistry, pp. 461-474  
in: AN SSSR, Moscow, 1966

(Report given at above Conference, Minsk, 11-14 Dec 63)

Authors: Saratov State University im. N. I. Chernyshev

Glikman, S. I.

CZECHOSLOVAKIA/Chemical Technology - Chemical Products and Their Application. Carbohydrates and Refinement. I-11

Abs Jour : Ref Zhur - Khimiya, No 1, 1958, 2803

Author : Glikman, S.A., Shubtsova, I.G.

Inst : Slovak Chemical Society

Title : The Heterogenous Nature of Agar.

Orig Pub : Vest. Slov. kem. drustva, 1956, 3, No 1-2, 19-27

Abstract : It was ascertained that it is possible to carry out a fractionation of agar by successive extraction with a liquid of constant composition at increasing temperature levels. Agar was divided into fractions that differ greatly in viscosity and degree of esterification. The possibility is shown of eliminating the effect of electroviscosity in agar solutions and of determining the true values of limit viscosity  $[\eta]$ .

Card 1/2



**"APPROVED FOR RELEASE: 09/24/2001**

**CIA-RDP86-00513R000515410001-4**

**APPROVED FOR RELEASE: 09/24/2001**

**CIA-RDP86-00513R000515410001-4"**

GLIKMAN, S. A.

The nature of the solution of cellulose ethers in alcohol  
mixtures. S. A. Glikman and L. A. Rost (N.G. Cherny-  
shevskii State Univ., Simbirsk). *Kolloid. Zhur.* 18, 971-9

**"APPROVED FOR RELEASE: 09/24/2001**

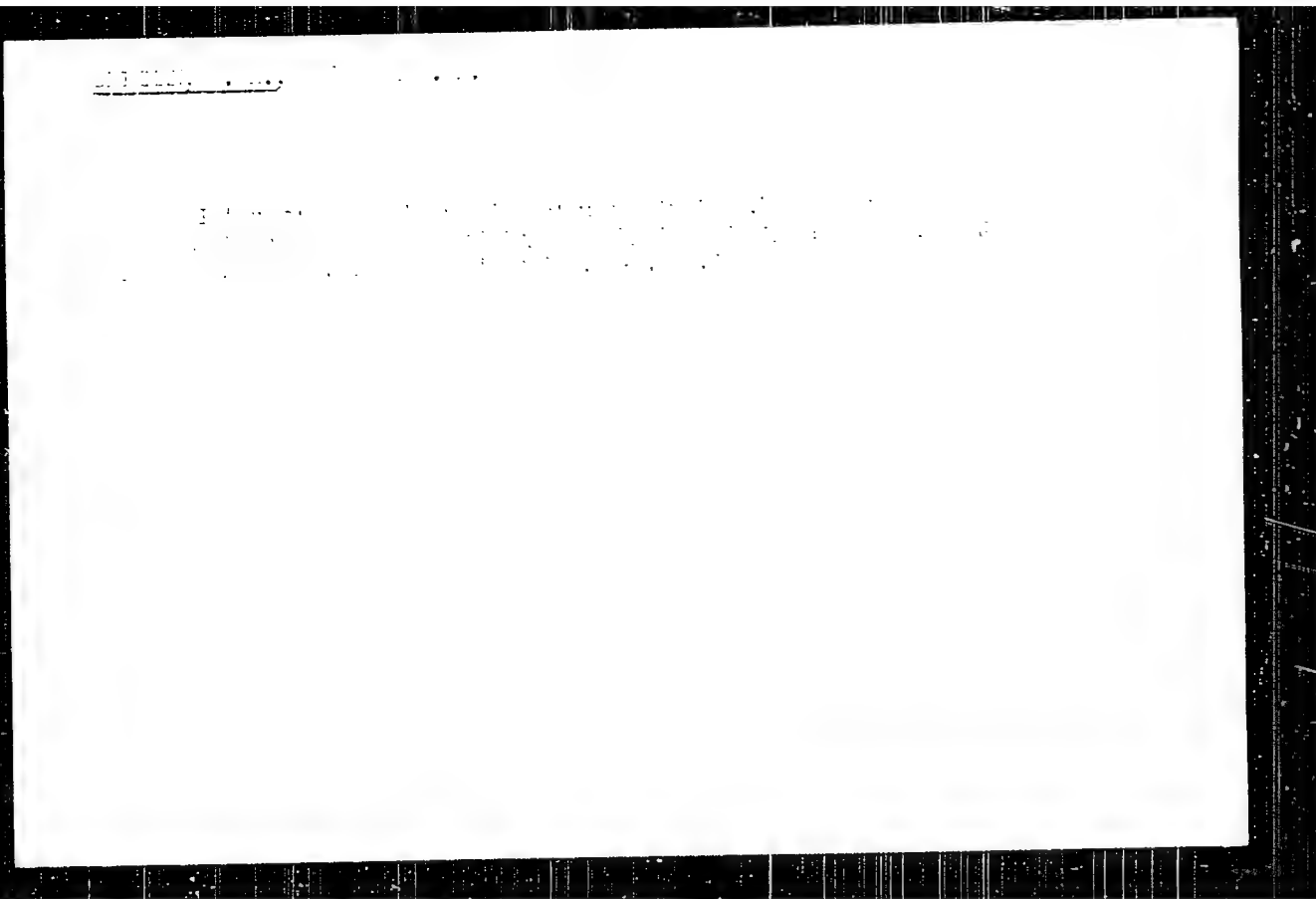
**CIA-RDP86-00513R000515410001-4**

**APPROVED FOR RELEASE: 09/24/2001**

**CIA-RDP86-00513R000515410001-4"**

"APPROVED FOR RELEASE: 09/24/2001

CIA-RDP86-00513R000515410001-4



APPROVED FOR RELEASE: 09/24/2001

CIA-RDP86-00513R000515410001-4"

CLIKMAN, S. A.

Coagulation of synthetic rubber. S. A. Clikman and B.  
P. Korcharov. U.S.S.R. 108,502, July 18, 1957. To  
facilitate coagulation with NaCl in the production of rubber  
strips, PhOH is added to the latex and the coagulation is  
carried out as usual. For best results 4-8 parts by wt.  
PhOH are added per kg. of latex. M. Hosh

JEJ  
MT

5  
4522(g)  
2 May

GLIEMAN, S.A.

GLIEMAN, S.A.; SHUBTSOVA, I.G.

Studies on the physical chemistry of agar, Part 1, On the method  
of determining the intrinsic viscosity of agar, Koll, zhur, 19 no.2:  
172-177 Mr-Ap '57. (MLRA 10:5)

1. Saratovskiy gosudarstvennyy universitet.  
(Viscosity) (Agar)

GLIKMAN, SA.

Physical chemistry of agar. II. Theory and reaction of agar fractionation. S. A. Glikman and L. I. Shupikova (N. G. Chernyshevskii State Univ., Saratov). *Kolloid. Zhur.* 19, 281-6 (1957); in: *Colloid Chemistry of Polymers*, 1958, p. 153-161. Agar from *Cetidin* contained 3.5% SO<sub>2</sub> and 0.76% C<sub>2</sub>H<sub>4</sub> and agar from *Ahnfeltia plicata* had 1.00% SO<sub>2</sub> and 1.04% C<sub>2</sub>H<sub>4</sub>. Both were extd. with H<sub>2</sub>O of 25°, then of 45°, then of 60°, 75°, 85°, and 90°. The fractions were 6-28% of the initial

"APPROVED FOR RELEASE: 09/24/2001

CIA-RDP86-00513R000515410001-4

because its cohesion energy depends on that frequency.  
J. J. Bikerman

inf

APPROVED FOR RELEASE: 09/24/2001

CIA-RDP86-00513R000515410001-4"



Glikman, S. A.

Distr: 4841/4820(3)

Number of carboxyl groups in ethylcellulose and their effect on mechanical properties. O. G. Glikman, A. I. Krasovskiy, A. I. Kondrasheva and S. A. Glikman (Zh. prikl. Khim., 1967, 40, (42-149). Two methods, giving results within 5-10% of each other, were applied for the determination of carboxyl groups in ethylcellulose gels. These were: (a) titration of acetone solutions with 0.05N-NaOH and thymolphthalein indicator; (b) reacting with Ba o-nitrophenoxide. Acetone solutions of the gel, containing 0.2% HCl were de-aired by 3 pptn. and subsequent dilution in prep. for analysis. From 1 carboxyl group per 43 to 1 per 111 links of the ethylcellulose mol. are found, varying with method of prep. Carboxymethylation slightly lowers the intrinsic viscosity and increases the elasto-viscous constant of the gel. Small quantities of  $\text{Ca}(\text{OH})_2$  introduced into carboxymethylated ethylcellulose increase the elasto-viscous properties.  $\eta$  of the gel were less than they do with the original ethylcellulose. Data for the  $\eta$  of 19% ethylcellulose gels with dibutyl phthalate (temp. 20°) after introduction of NaCl,  $\text{CaCl}_2$ ,  $\text{NaCl}$ ,  $\text{NaOH}$ ,  $\text{Ca}(\text{OH})_2$  and  $\text{Ni}(\text{CH}_3\text{COO})_2$  show that the effect of the introduction of electrolytes depends upon the nature of both cations and anions. Salts of strong acids did not show any effect on  $\eta$  but strong bases and salts of weak acids with  $\text{Ni}(\text{CH}_3\text{COO})_2$  and  $\text{Ca}(\text{OH})_2$  did. The limit of elasticity increased 3-6 times, relaxational  $\tau$  15-30 times and modulus of elasticity 1.5-3 times.  $\text{NaOH}$  similarly, but to a lesser degree, improved  $\eta$ . Properties of ethylcellulose films are affected by introduction into the ethylcellulose of 0.1% of  $\text{Ca}(\text{OH})_2$  and  $\text{Ba}(\text{OH})_2$ . There is an increase in the tear strength of the films from 600 (for ashless samples) to 745 and 723 kg./cm.<sup>2</sup> for samples containing  $\text{Ca}$  and  $\text{Ba}$  and also the proportion of fragile creases is reduced.

2 may

GLITMAN, S.A.; YEFREMOVA, O.G.; KOSYREVA, I.K.; SOMOVA, A.I.

Conditions for the production of "thermally stable" ethylcellu-  
lose. Zhur. prikl. khim. 31 no.7:1037-1091 J1 '63.  
(Cellulose) (HRA 11:9)

5(4)

PHASE I BOOK EXPLOITATION

SOV/3444

Glikman, S. A.

Vvedeniye v fizicheskuyu khimiyu vysokopolimerov (Introduction to the Physical Chemistry of High Polymers) [Saratov] Izd-vo Saratovskogo univ., 1959. 378 p. 10,000 copies printed. Errata slip inserted.

Ed.: E. I. Karobova; Tech. Ed.: A. G. Druzhinin.

PURPOSE: This textbook is intended for students of institutions of higher education.

COVERAGE: The textbook reviews basic principles of rheology and physical chemistry. Structures and motion of molecules of high polymers are described and definitions of terms such as elasticity, fluidity, plasticity, deformation, mechanical strength, brittle point, impact resistance, frost and heat resistance are given along with an explanation of relaxation phenomena and the effect of orientation molecules, temperature and other factors on the mechanical properties of polymers. The swelling process and its kinetics are described as well as properties of gels and the thermodynamics of solutions. The author also analyzes the osmotic

Card 1/6

Introduction to the Physical (Cont.)

SOV/3444

pressure of high polymer solutions, results of dilution, statistical theory of entropy and the solubility of high polymers. Problems of polymolecularity, colloidal electrolytes, and structural viscosity are reviewed along with the optical properties of solutions, diffusion of light, depolarization of diffused light and refraction of a ray in a fluid. Each chapter is accompanied by references.

TABLE OF CONTENTS:

Foreword	3
Ch. I. Introduction	5
States of aggregation of high polymer compounds	5
Bibliography	19
Ch. II. Crystallinity of high polymers	21
Bibliography	50
Ch. III. Mechanical Properties	52
1. Fundamentals of rheology	52
a. Constants of materials	52

Card 2/6